

REMARKS / ARGUMENTS

Status of Claims

Claims 1-33 are pending in the application. Claims 1-6, 13-27 and 30-33 stand rejected. Claims 7-12 and 28-29 are objected to as being dependent upon a rejected claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has amended Claims 7 and 18-30, leaving Claims 1-33 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the rejections under 35 U.S.C. §101, 35 U.S.C. §102(b), and 35 U.S.C. §103(a), have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

Claim Objections

Claims 7-12 and 28-29 are to objected to as being dependent upon a rejected claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant has amended Claims 7 into an independent form incorporating all of the limitations of the parent claims.

Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw these objections, which Applicant considers to be overcome.

Rejections Under 35 U.S.C. §101

Claim 10 stands rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Specifically, the Examiner found that a program which operates a computer is merely a set of instructions capable of being implemented by a computer, however, by itself without being encoded onto a computer-readable medium is not realizable. MPEP 2106: IV(B)(1)(1).

Applicant appreciates the Examiner clarifying by telephone on March 5, 2008 that

this rejection under 35 U.S.C. § 101 was supposed to be in reference to Claim 18 rather than Claim 10. In the event that Applicant has misunderstood the Examiner, a nonfinal office action clarifying this rejection on the record is earnestly solicited.

By this amendment, Applicant has amended Claims 18-30 to be directed to a program storage medium, readable by a computer, embodying a program of instructions to perform a method for processing a digital image. Applicant respectfully submits that Claims 18-30, as amended, is directed to statutory subject matter where the instructions are encoded onto a computer readable medium. This amendment was made for the purposes of clarifying the claim to be directed to appropriate subject matter and not for the purposes of avoiding the prior art. Reconsideration and withdrawal of this rejection is respectfully requested.

Rejections Under 35 U.S.C. §102(b)

Claims 1-6, 13-16, 18-27 and 31-33 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hong et al. (U.S. Patent Publication No. 2002/0037103, hereinafter Hong).

Applicant traverses this rejection for the following reasons.

Applicant respectfully submits that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, *in a single prior art reference.*” *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). Moreover, “[t]he identical invention must be shown in as complete detail as is contained in the *** claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Furthermore, the single source must disclose all of the claimed elements “arranged as in the claim.” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Applicant respectfully submits that independent Claims 1, 18, and 31 are not anticipated by Hong. Hong discloses an image processing system that determines a background region based on pixels having values below a first threshold. [Hong, Paragraph[0086]]. A foreground region is then determined based on pixels not included in the background region and which have a value above a second threshold. [Hong, Paragraph[0087]]. Hong teaches that the remaining pixels are compared to a third threshold. If the pixel value is below the third threshold, the pixel is added to the background region. If the pixel value is above the third threshold, the pixel is added to the foreground region. [Hong, Paragraph [0088]].

In contrast to Hong, independent Claims 1, 18 and 31 each include the following limitation:

“wherein the estimated foreground region, the estimated background region, and the calculated transition region, each comprise a separate set of pixels that may each be processed separately for suppressing pixel intensities in the estimated background region and improving image quality.” (emphasis added)

Applicant respectfully submits that Hong does not teach of calculating a transition region, but rather all the pixels are assigned to either the foreground or the background regions. Also, to the extent that Hong discloses a region separate from the foreground and background, this region is not calculated, but is merely the pixels that were left over from previous calculations.

Further, Applicant submits that Hong does not disclose a transition region that may be processed separately. The system disclosed by Hong does not maintain a transition region as a separate set. Notwithstanding the above, if it is assumed that Hong does have a transition region, these pixels are assigned to either the foreground or background regions. Therefore, the pixels are processed as part of the background or foreground region and not separately as required by independent Claims 1, 18 and 31.

Accordingly, Applicant respectfully submits that Hong does not anticipate independent Claims 1, 18 and 31. Reconsideration and withdrawal of this rejection is respectfully requested.

With respect to dependent Claims 2, 19 and 31 Applicant respectfully submits that Claims 2, 19 and 31 include further limitations not found in the prior art. Additionally, Dependent Claims 2 and 19 depend directly from independent Claims 1 and 18 and also incorporate all of the limitations of the respective parent claims and therefore are not anticipated for the reasons set forth above with respect to Claims 1 and 18. Further, Claims 2, 19 and 31 each include the limitation that the threshold region is calculated using “a gradient constrained hysteresis threshold method.” In the office action, the Examiner stated that Hong discloses a gradient constrained hysteresis threshold method. [paper 20071212, page 3]. Applicant respectfully disagrees. As discussed above, Applicant submits that Hong does not disclose a threshold region. This notwithstanding, Hong discloses a simple threshold division method where the left-over pixels are divided into either the foreground and background regions. [Hong, Paragraph [0088]]. In contrast, a gradient constrained hysteresis threshold method avoids having moderate intensity background artifacts along the edge of the region from getting incorporated into the transition region. [present Application, Paragraph [0023]]. Hong simply does not teach such a method but rather segregates the pixels on a definitive threshold value. Accordingly, Applicant respectfully submits that Claims 2, 19 and 31 are not anticipated by Hong. Reconsideration and withdrawal of this rejection are respectfully requested.

With respect to dependent Claims 3-6, 13-16, 20-27 and 32-33, which depend directly or indirectly from independent Claims 1, 18, and 31, also incorporate all of the limitations of the parent claims. Applicant respectfully submits that for at least the reasons stated above with respect to Claims 1-2, 18-19 and 31, Hong does not anticipate that Claims 3-6, 13-16, 20-27 and 32-33. Reconsideration and withdrawal of this rejection is respectfully requested.

Accordingly, Applicant submits that Hong does not disclose all of the claimed elements arranged as in the claim, and absent anticipatory disclosure in Hong of each and every element of the claimed invention arranged as in the claim, Hong cannot be anticipatory.

Rejections Under 35 U.S.C. §103(a)

Claims 17 and 30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hong in view of Vafai (U.S. Patent No. 5,825,910, hereinafter Vafai).

Applicant traverses these rejections for the following reasons.

Applicant respectfully submits that the obviousness rejection based on the Hong and Vafai is improper as Hong and Vafai fail to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

Applicant respectfully submits that Claims 17 and 30 are not obvious in view of Hong in light of Vafai. Claims 17 and 30 depend directly from independent Claims 1 and 18 respectively. Therefore, Claims 17 and 30 incorporate all of the limitations of the parent claim. As discussed above with respect to the rejection under 35 U.S.C. § 102, Hong simply does not disclose a threshold region that is maintained as a separate set and that is processed separately. Applicant respectfully submits that Vafai does not cure this deficiency. Rather, Vafai discloses a digital mammography system that automatically segments an image into different regions of the breast. [Vafai, abstract]. Applicant respectfully submits that the combination of Hong with Vafai would not result in an imaging system that operates in a manner to perform as the claimed invention performs, namely, the threshold region would not be maintained as a separate set and processed separately. Accordingly, Applicant respectfully submits that Claims 17 and 30 are not obvious in view of Hong in light of Vafai. Reconsideration and withdrawal are

respectfully requested.

In addition to the foregoing, Applicant finds no motivation or teaching in any of the References to modify Hong in view of Vafai to arrive at the claimed arrangement of elements without disturbing the threshold pixel region characteristics and intended purpose of the art being modified.

In further view of the foregoing, Applicant submits that Hong and Vafai fail to teach or suggest each and every element of the claimed invention and are therefore wholly inadequate in their teaching of the claimed invention as a whole, fail to motivate one skilled in the art to do what the patent Applicant has done, fail to recognize a problem recognized and solved only by the present invention, fail to offer any reasonable expectation of success in combining Hong and Vafai to perform as the claimed invention performs, fail to teach a modification to prior art that does not render the prior art being modified unsatisfactory for its intended purpose, and discloses a substantially different invention from the claimed invention, and therefore cannot properly be used to establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a), which Applicant considers to be traversed.

If a communication with Applicant's Attorneys would assist in advancing this case to allowance, the Examiner is cordially invited to contact the undersigned so that any such issues may be promptly resolved.

The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 06-1130.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-identified Deposit Account.

Respectfully submitted,

CANTOR COLBURN LLP

Applicant's Attorneys

By: /D S Christensen Reg No 40955/

Dave S. Christensen
Registration No: 40,955
Customer No. 23413

Address: 20 Church Street, 22nd Floor, Hartford, CT 06103-3207
Telephone: (860) 286-2929
Fax: (860) 286-0115